

IN THE CLAIMS

Listing of Claims

1. (Currently Amended) A method for monitoring mirroring conditions of at least one of a pair of storage units, comprising:

providing a machine-actionable memory having one or more machine-actionable records arranged according to a data structure, the data structure including at least one status field the contents of which are indicative of the status of a mirroring process of the at least one storage unit pair, respectively;

requesting mirroring software to obtain status information relating to the at least one storage unit pair from mirroring software associated therewith;

receiving the requested status information;

automatically updating the at least one status field of the machine-actionable memory based upon the requested status information; and

automatically determining from the updated at least one status field of the machine-actionable memory whether the monitoring mirroring conditions of the at least one storage unit pair is in a suspended condition, based upon status information obtained, to automatically determine the status of a mirroring process between units of the at least one storage unit pair.

2. (Canceled)

3. (Canceled)

4. (Currently Amended) The method of claim 1 [3] further comprising:

resynchronizing, in conjunction with the mirroring software, the mirroring process between units of the storage unit pair, upon determining that the mirroring process between units of the storage unit pair has been suspended.

5. (Original) The method of claim 4, wherein resynchronization occurs only upon determining that automatic resynchronization of the storage unit pair has been enabled.

6. (Currently Amended) The method of claim 5, wherein the data structure further stored monitoring information includes a field representing an autorecover flag, indicating whether or not automatic resynchronization has been enabled.

7. (Currently Amended) The method of claim 1 [2], wherein the data structure further step of storing includes at least one field representing at least one of information identifying the storage unit pair, information identifying associated mirroring software, and information identifying a monitor interval, respectively, and wherein the step of requesting includes requesting associated mirroring software to obtain status information, based upon a stored monitor interval.

8. (Canceled)

9. (Currently Amended) The method of claim 7 [8] further comprising:
resynchronizing, in conjunction with the mirroring software, the mirroring process between storage units of the storage unit pair, upon determining that the mirroring process between storage units of the storage unit pair has been suspended, and upon determining that automatic resynchronization of the storage unit pair has been enabled.

10. (Currently Amended) The method of claim 9, wherein the data structure further stored monitoring information includes a field representing an autorecover flag, indicating whether or not automatic resynchronization has been enabled.

11. (Currently Amended) The method of claim 1 [2], wherein the machine-actionable memory includes instances of the data structure monitoring information is stored for a plurality of storage unit pairs, respectively, and wherein status information for each storage unit pair is requested, and mirroring conditions of each storage unit pair are monitored.

12. (Currently Amended) The method of claim 11, wherein the data structure further step of storing includes at least one field representing at least one of storing information identifying a storage unit pair, information identifying associated mirroring software, and information identifying a monitor interval, respectively, and wherein the step of requesting includes requesting associated mirroring software to obtain status information, based upon a stored monitor interval.

13. (Original) The method of claim 12, wherein the monitoring information for each of a plurality of storage unit pairs is stored in a database.

14. (Previously presented) The method of claim 2, wherein the stored monitoring information for the at least one storage unit pair is remotely monitorable.

15. (Canceled)

16. (Original) The method of claim 12, wherein the stored monitoring information is variable.

17. (Original) The method of claim 12, wherein monitoring information for a storage unit pair can be added to the database.

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18. (Currently Amended) A method for monitoring mirroring conditions of at least one of a pair of storage units, comprising:

providing a machine-actionable memory having one or more machine-actionable records arranged according to a data structure, the data structure including at least one status field the contents of which are indicative of the status of a mirroring process of the at least one storage unit pair, respectively;

requesting mirroring software to obtain status information relating to at least one storage unit pair from mirroring software associated therewith;

receiving the requested status information;

automatically updating the at least one status field of the machine-actionable memory based upon the requested status information; and

automatically determining from the updated at least one status field of the machine-actionable memory whether the mirroring process between storage units of the storage unit pair has been suspended based upon the status information obtained; and

resynchronizing, in conjunction with the mirroring software, the mirroring process between units of the storage unit pair, upon determining that the mirroring process between storage units of the storage unit pair has been suspended.

19. (Canceled)

20. (Currently Amended) The method of claim 18 [19], wherein resynchronization occurs only upon determining that automatic resynchronization of the storage unit pair has been enabled, and wherein the data structure further stored monitoring information includes an autorecover flag, indicating whether or not automatic resynchronization has been enabled.

21. (Currently Amended) The method of claim 18 [19], wherein the data structure further step of storing includes at least one field representing storing at least one of information identifying the storage unit pair, information identifying associated mirroring software, and information identifying a monitor interval, respectively.

22. (Currently Amended) An apparatus for monitoring mirroring conditions of a pair of storage units, comprising:

a database, adapted to store monitoring information for at least one storage unit pair and arranged at least in part according to a data structure, the data structure including at least one status field the contents of which are indicative of the status of a mirroring process of at least one storage unit pair, respectively; and

a control unit, operatively connected to the database and mirroring software for the at least one storage unit pair, adapted to request ~~mirroring software to obtain~~ status information relating to the at least one storage unit pair, from mirroring software associated therewith, to receive the requested status information, to automatically update the at least one status field of the data structure based upon the requested status information, and based upon the stored monitoring information and adapted to automatically monitor mirroring conditions of the at least one storage unit pair, based upon status information obtained, to automatically determine the status of a mirroring process from the updated at least one status field of the data structure between units of the at least one storage unit pair.

23. (Canceled)

24. (Currently Amended) The apparatus of claim 22 [23], wherein the control unit is further adapted to resynchronize, in conjunction with the mirroring software, the mirroring process between units of the storage unit pair, upon determining that the mirroring process between units of the storage unit pair has been suspended.

25. (Original) The apparatus of claim 24, wherein the control unit is adapted to resynchronize only upon determining that automatic resynchronization of the storage unit pair has been enabled.

26. (Currently Amended) The apparatus of claim 25, wherein the data structure further stored monitoring information includes a field representing an autorecover flag, indicating whether or not automatic resynchronization has been enabled.

27. (Original) The apparatus of claim 22, wherein the database is adapted to store at least one of information identifying the storage unit pair, information identifying associated mirroring software, and information identifying a monitor interval.

28. (Currently Amended) The apparatus of claim 22, wherein the database includes instances of the data structure is adapted to store monitoring information for a plurality of storage unit pairs, respectively, and wherein status information for each storage unit pair is requested, and mirroring conditions of each storage unit pair are monitored.

29. (Original) The apparatus of claim 28, further comprising:
an interface, operatively connected to the database, for adding monitoring information for additional pairs of storage units.

30. (Original) The apparatus of claim 22, further comprising:
an interface, operatively connected to the database, for varying stored monitoring information.

31. (Currently Amended) An apparatus for monitoring mirroring conditions of a pair of storage units, comprising:
a database, adapted to store monitoring information for at least one storage unit pair and arranged at least in part according to a data structure, the data structure including at least one status field the contents of which are indicative of the status of a mirroring process of at least one storage unit pair, respectively; and

a control unit, operatively connected to the database and mirroring software for at least one storage unit pair, adapted to request ~~associated mirroring software to obtain status information relating to the at least one storage unit pair from mirroring software associated therewith, to receive the requested status information, to automatically update the at least one status field of the data structure based upon the requested status information, to automatically determine the status of a mirroring process from the updated at least one status field of the data structure based upon the stored monitoring information, adapted to automatically determine whether the mirroring process between storage units of the storage unit pair has been suspended based on the status information obtained, and adapted to resynchronize in conjunction with the mirroring software, the mirroring process between storage units of the storage unit pair, upon determining that the mirroring process between storage units of the storage unit pair has been suspended and upon determining that automatic resynchronization of the storage unit pair has been enabled.~~

32. (Currently Amended) A system for monitoring mirroring conditions of at least one pair of storage units, comprising:

a mirroring software system, adapted to automatically obtain status information on mirroring conditions of the at least one pair of storage units; and

an apparatus, adapted to automatically monitor mirroring conditions of the at least one pair of storage units in conjunction with the mirroring software system, the apparatus including,

a database, adapted to store monitoring information for the storage unit pair ~~and arranged at least in part according to a data structure, the data structure including at least one status field the contents of which are indicative of the status of a mirroring process of at least one storage unit pair, respectively, and~~

a control unit, operatively connected to the database and mirroring software for the pair of storage units, adapted to request ~~mirroring software to obtain status information relating to the at least one storage unit pair from the mirroring software system, to receive the requested status information, to automatically update~~

the at least one status field of the data structure based upon the requested status information, and based upon the stored monitoring information and adapted to automatically monitor mirroring conditions of the at least one storage unit pair, based upon status information obtained, to automatically determine the status of a mirroring process between units of the at least one storage unit pair.

33. (Original) The system of claim 32, wherein the control unit is further adapted to resynchronize, in conjunction with the mirroring software, the mirroring process between units of the storage unit pair, upon determining that the mirroring process between units of the storage unit pair has been suspended.

34. (Original) The system of claim 33, wherein the control unit is adapted to resynchronize only upon determining that automatic resynchronization of the storage unit pair has been enabled.

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